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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,425	01/07/2005	Michael Stewart Griffith	033963-014	5697

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BUCHANAN, INGERSOLL & ROONEY PC  
POST OFFICE BOX 1404  
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EXAMINER
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ROBINSON, MARK A

ART UNIT	PAPER NUMBER
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2872

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/24/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/520,425

Applicant(s)

GRIFFITH ET AL.

Examiner

Mark A. Robinson

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 and 5-28 is/are pending in the application.
- 4a) Of the above claim(s) 3, 7, 16-24 and 26-28 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, 6, 9-15 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 10-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These claims recite that the compliance of the support elements is adjusted according to the position of the support element (see specifically claims 10 and 12-15). This implies that the compliance is actively varied. However, the specification seems to teach that the particular degree of compliance of each support element varies (i.e. is different) depending upon the particular position of said support element. Accordingly, the limitations in question appear to be misdescriptions of the present invention. Appropriate correction and/or clarification is required.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1,2,5-6,9 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plante (US 4655563) in view of Clemeno (US 4670338).

Regarding claims 1 and 2, Plante discloses a deformable mirror and holder including a body(20) with a receiving portion for receiving a deformable mirror(10) and defined by a plurality of discrete, spaced, passive support structures(16) connecting the mirror substrate and body which may provide a supporting surface to the mirror (see figs. 3,5,6,etc.). Regarding claim 9, note that integral is sufficiently broad so as to encompass the joined structures shown by Plante. Regarding claim 25, note that the mirror includes both a reflective surface(14) and a layer of deformable material(10,12 or 18) operable to deform the mirror. Further regarding the amendments to claim 1, Plante shows some of the support elements to be in a circular

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arrangement (e.g. two or three of the elements would lie on an imaginary circle and are equi-spaced), and the deformable mirror has a plurality of mirror electrodes formed on a surface (note that electrodes 34 are necessarily formed on a surface).

Plante further discloses an epoxy as part of the support structure (col. 3 line 22; col. 4 lines 40-43) which would be flexible to some degree. However, inasmuch as "flexible" or "compliant" as in claims 1 and 6 is not taught by Plante, it is disclosed by Clemino (note col. 5 lines 37-43). It would have been obvious to the ordinarily skilled artisan at the time of invention to use a flexible epoxy adhesive as taught by Clemino as the epoxy disclosed by Plante in order to enable the absorption of stresses and other advantages disclosed by Clemino (col. 7 lines 43-50).

Regarding claim 5, Plante shows each of the support elements to be in supportive contact with one different electrode (see fig. 3).

***Allowable Subject Matter***

5. Claim 8 is allowed.

***Response to Arguments***

6. Applicant's arguments have been fully considered but they are not persuasive.

Regarding applicant's traversal of the 112 rejection, the amendment to claim 10 is not deemed to overcome this rejection. The term "adjusted" as used in the phrase "is adjusted" is a verb and thus implies an action. Accordingly, since the disclosure does not teach actively changing the compliance of the compliant material, the claims do not correspond with the teachings of the specification. Note that the language used in claim 11 to describe the arrangement for the compliant material avoids this problem.

Regarding the amendment to claim 1, applicant has argued that Plante's electrodes are interleaved within the material of the actuators and thus cannot be formed on a surface of the deformable mirror as claimed.

However, this limitation is not required by the claims. Plante's electrodes are "formed on a surface" which is the limitation actually recited in the claims.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Robinson whose telephone number is (571) 272-2319.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen, can be reached at (571) 272-2434. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2800.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MR

4/19/07

  
MARK A. ROBINSON  
PRIMARY EXAMINER